



Published weekly for employees of Lawrence Livermore National Laboratory

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Cargo industry briefed on threats



Rapid inspection of large numbers of cargo containers, such as those on this ship arriving in the Port of Oakland, pose a challenge for customs agents and security officials.

NEWSLINE STAFF REPORT

Executive Officer Ron Cochran offered a look at the various terrorist threats facing freight transportation, together with technology solutions to some of the highest priority

issues, during a special two-day International Cargo Security Summit in Chicago Wednesday and Thursday.

“The terrorist attacks of Sept. 11 have

See **CARGO**, page 8

New view of black hole phenomena provided by Laboratory researchers

By Anne M. Stark

NEWSLINE STAFF WRITER

When most people think of black holes, they think of an area of space where matter can disappear. But that view is inconsistent with quantum mechanics.

In 1991 Lab physicist George Chapline suggested that this inconsistency could be avoided if it is assumed that the vacuum state of ordinary space-time is a kind of superfluid. The formation of black holes would correspond to a “squeezing” of the vacuum, roughly analogous to the compression of an ordinary fluid.

More recently, Chapline and colleagues at

See **BLACK HOLES**, page 8

Survey to assess employee knowledge of ISSM program

The Safeguards & Security organization will be conducting an employee survey during the next two weeks to determine employees’ knowledge of the Integrated Safeguards & Security Management program (ISSM) implemented last year.

About 2,300 randomly selected employees are being asked to participate. Employees who have been selected are receiving notices this week. The survey consists of 19 questions for employees, and an additional four questions for managers or supervisors. Responses will be

See **SURVEY**, page 8

Safeguards & Security launches new key handling procedures for Protective Force Division

The Laboratory moved quickly to upgrade security procedures in and around the site following the report of a set of missing keys last Friday.

“Protective Force officers working in concert with security managers have identified and implemented practices that will enhance the Lab’s strong physical security posture,” said Dave Leary, director of the Safeguards and Security Organization.

On July 11, a Protective Force officer noticed his keys were missing while working his shift. He quickly reported the incident. The officer and additional Protective Force officers immediately began an intensive search, retracing the officer’s steps. By July 12, additional volunteer crews, some with metal detectors, had joined the effort.

“Everyone in Protective Force and around the Lab

See **SECURITY**, page 7

UC Regents name Nanos LANL director

The University of California Board of Regents Thursday named retired Vice Admiral George P. Pete Nanos, currently interim director, as permanent director of the UC-managed Los Alamos National Laboratory in New Mexico. Nanos has served as the laboratory’s interim director since Jan. 6.

Acting on the recommendation of UC President Richard C. Atkinson, the regents appointed Nanos the seventh director of the Los Alamos laboratory during a regularly scheduled regents’ meeting in San Francisco.

“As he has throughout his career, Pete Nanos has exercised bold and innovative leadership as interim director of Los Alamos National Laboratory for the past six months,” Atkinson said. “This vote by the regents to



George P. “Pete” Nanos

make him permanent director affirms our collective belief that Pete possesses the unique set of skills to sustain over time the business practice reforms we have put into place while also preserving the laboratory’s place as a premier institution of national security science.”

Since being appointed interim director at the laboratory, Nanos is credited with creating a new atmosphere of openness in communications, implementing strong sound business practices and ensuring that

the laboratory remains focused on the national security mission.

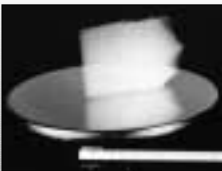
In his role as interim director, Nanos set five top performance priorities for the labora-

See **NANOS**, page 8



Walk honors cancer victims

— Page 3



Lighter side of aerogel

— Page 7



Setting a career course

— Insert



LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Friday
18

Today is last day to complete **travel services survey**. If you have used the Lab's travel management company, TQ3 Travel Solutions (formerly known as Maritz), to arrange your own or someone else's business travel within the past year, please click on the survey link (<http://www.travelhq.com/EventEasy/tq3survey/registration?code=LLN010503>) and complete the brief online travel survey. The survey takes three to five minutes to complete; responses are anonymous.

Sunday
20

A "**Science in Our Schools**" Benefit Festival will be held to raise money and public awareness in support of the Livermore Valley Unified School District's elementary science program, which has been eliminated due to budgetary constraints. The event will take place this Sunday at Robertson Park in Livermore, from 2-6 p.m. Ticket prices are \$5 per student, \$10 per adult, and \$25 per family. Proceeds will go to the Livermore Valley Education Foundation to support the preservation of the Livermore elementary science program. For information, contact Linda Lucchetti at 2-5815.

UP
&
COMING

A **Fidelity Retirement Counselor** will be available Aug. 5-6 to assist you with: assessing the current state of your retirement accounts,

learning how to diversify, planning your asset allocation, and identifying income strategies. Fidelity Investments Mutual Funds are available to UC's workplace retirement plan participants in addition to the UC-managed investments pools. Fidelity's program includes 150 mutual fund choices in six categories, stock funds, index funds, asset allocation funds, freedom funds, bond funds and money market funds. If you would like to set up a consultation with your Fidelity representative, please call 800-642-7131. When calling, be sure to specify that you are an LLNL employee.

• • •

The LLESA Office has tickets to the Aug. 23, 11:30 a.m. performance of the **Ringling Brothers and Barnum & Bailey Circus** at the Oakland Arena. These seats are located in Section 101 and the LLESA price per ticket is \$18 (regular price is \$21).

Kiernan-Rodriguez retires after 29 years of service

A retirement reception will be held Thursday, Aug. 7, for Karen Kiernan-Rodriguez of the Public Affairs Office at the Cedar Mountain Winery.

Kiernan-Rodriguez will retire Aug. 15. The party will be held from 3-7 p.m. Cost is \$13.50 per person and checks can be made to Susan Houghton. RSVP by Monday, Aug. 4.

For more information, contact Carole Phillips at 4-6575 or Kirsten Sprott at 4-4822.

Officer wrestles his way to the top

By Leslie Schwartz

NEWSLINE STAFF WRITER

We see them as we drive into the Lab each morning. They keep us and the Lab safe and secure. They are the Protective Force Officers, and one officer, Marc Kavanagh, participates in amateur wrestling competitions in his spare time.

Kavanagh hasn't had to use any of his wrestling holds or moves on perpetrators at the Lab, but admits, "wrestling has made me tough. It helped a lot with the training we had to go through to become officers and I feel it has given me a slight advantage in doing my job."

Kavanagh began wrestling more than 17 years ago and has participated in numerous competitions, from attending three state matches in high school to placing among the top seven wrestlers in California to being a two-time junior college All-American wrestler and qualifying for junior nationals in 1991 and 1992.

"My most memorable competitions were the junior college All-American matches at Chabot College," Kavanagh recalled.

He also participated in the 1996 Olympic trials, placing in the top 100, and most recently, finished second in his 152-pound weight class in the prestigious California Police and Fire Games in Sacramento this past June.

"I am proud to just compete in competitions," he said. "I enjoy wrestling because it becomes a part of you and is a good hobby. With anything, whether it is a hobby or your career, if you do something long enough and like it, you become accustomed to it and it becomes part of your daily routine. That's what wrestling has become for me."

Kavanagh currently coaches wrestling at Livermore High School and also helps out with



Lab Protective Force officer Marc Kavanagh, right, celebrates victory during an amateur wrestling match.

freestyle youth wrestling in the area. While attending Livermore high, he began coaching at East Avenue Middle School, the same school where he began his wrestling career in sixth grade.

After he graduated from high school, Kavanagh started coaching at Livermore High, supporting and training young wrestlers.

"I encourage parents to let their children experience wrestling because I think wrestling has made me a better person," Kavanagh said. "Not only does it increase self confidence, but there are definite benefits relating to building strength and increasing sportsmanship that go along with it, too."

Overall, Kavanagh's talents as a wrestler have brought him far professionally and have helped him develop a life-long hobby that he not only enjoys, but one which allows him to give back to the community through his involvement.

African-American lecture series to showcase Lab work

The African American Lecture Series will kick off with a talk by Jennifer Nelson-Lee entitled "The Toxics Release Inventory Reporting Process and its Impact to LLNL Programs" at 1:30 p.m. Friday, July 25 in the Bldg. 155 auditorium.

Nelson-Lee will explain why LLNL as a federal facility and research laboratory is not exempted from the Toxic Release Inventory (TRI) reporting process. She will also discuss the TRI process including collecting data from programs Lab wide, performing threshold calculations for each of over 650 TRI-listed chemicals, and tracking and reporting the releases to land, air, and water for any chemicals that exceed the reporting threshold.

Nelson-Lee is an environmental analyst with the Chem Track Operations Group of the Operations and Regulatory Affairs Division of the Environmental Protection Department. Her major tasks include preparing the annual Site 300 Hazardous Materials Plan and the annual Toxic Release Inventory report for the main site and Site 300.

The lecture series was established to create a forum for African American scientists and engineers at the Lab to showcase their work and is intended to appeal to a broad scientific audience. The series is co-sponsored by the Chemistry and Materials Science and Administration and Human Resources directorates.

Nelson-Lee originally started with the Laboratory in the Health and Ecological Assessment Division, matrixed to the Environmental Restoration Division within the Environmental Protection Department.

She worked as a soils scientist on such remediation projects as the Dynamic Underground Stripping and Steam Injection project, helping with the characterization of soils from the gasoline spill area. Prior to joining the Laboratory, Nelson-Lee worked as a mining engineer for the Guyana Bauxite Company in South America.

For more information, contact Tuijauna Mitchell-Hall, 4-4469, Nora Briant, 2-6414, or Winifred Burkes-Houck, 2-6365.

Newsline

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AROUND THE LAB



Cancer survivors and victims honored



Jacqueline McBride/Newsline

Some 100 employees participated in a walk at the Laboratory Wednesday in memory of victims of cancer and honoring survivors. John Smalls of the Protective Force Division paid tribute to fellow officer Michael Caraveo, who died of cancer earlier this year. The event brought the 2003 LLNL/Sandia National Laboratory Cancer Awareness Campaign to a close.

Backyard wildlife next on sizzlin' summer schedule

California is home to a rich diversity of wildlife species. But what you may not realize is that LLNL is home to several protected and endangered species, such as the California red-legged frog. Lab wildlife biologist Michael van Hattem will discuss "Protecting California's Wildlife: Endangered Species in Your Own Backyard," on Wednesday, July 23, at 7 p.m. in the Livermore High School Performing Arts Theater, 600 Maple St.



Michael van Hattem

Van Hattem will discuss California's wildlife diversity and the future of California's most precious biological resources. He will also explain how LLNL is home to several protected and endangered species, as well as discuss how LLNL works to actively protect and monitor these endangered populations.

"Believe it or not, some of these animals can even be found in your own backyard," van Hattem said. "Public awareness is important for protecting California's wildlife because conservation needs to start with each individual."

After the lecture, don't miss your chance to get up close and personal with several unusual animals available for viewing, including a Pacific

gopher snake, a common poorwill, and a Swainson's hawk (a threatened species in California).

This talk is the third in LLNL's "Sizzlin' Summer Science" Lecture Series, a four-week series of free talks geared toward families, middle and high school students.

The free lectures continue each Wednesday

day in July at the Livermore High School Performing Arts Theater, starting at 7 p.m. and ending at approximately 8:30 p.m.

For more information on the Sizzlin' Summer Science Series, check the Website at <http://www.llnl.gov/llnl/06news/Community/lecture.html> or contact Christine Mixan in Public Affairs at 2-3138 or mixan1@llnl.gov.

Forensic science fighting crime



JACQUELINE MCBRIDE/NEWSLINE

Glen Fox of the Lab's Forensic Science Center discussed and demonstrated how forensic science techniques are used in criminal investigations Wednesday evening at Livermore High School.



NEWS YOU CAN USE

Laboratory’s summer student intern program heats up

As the temperature in Livermore rises, so do the opportunities for summer student interns. Multiple seminars, field trips, discussions, tours and other events are offered in the upcoming week. Check out descriptions below or on the web at the student bulletin board, <http://education.llnl.gov/sbb/>, where you can register to attend.

Week of July 21–25

Monday 21
Computation Associate Director brown bag luncheon
Come join Dona Crawford with your lunch at noon for a question-and-answer session in the field of computation research and programs, future projects, careers and educational opportunities in the field and related topics. This event is located in Bldg. 123, room A. Contact Barry Goldman, 2-5177, for information.

Tuesday 22
“How to Create Effective Poster Presentations”
Learn how to create effective poster presentations at a talk in Bldg 415, room 218 from 11 a.m. - noon with Marsha McInnis. The workshop will include guidelines for layout, presentation tips, electronic media program overviews and other helpful topics relating to poster presentations. Contact Barry Goldman, 2-5177, for more information.

National Atmospheric Research & Advisory Center (NARAC) tour
Are you a MARA participant who is interested in atmospheric research? Come to Bldg. 170’s control room at noon to take a tour of the National Atmospheric Research & Advisory Center (NARAC), a national support and resource center for planning, real-time assessment, emergency response and detailed studies of incidents involving a wide variety of hazards, including nuclear, radiological, chemical, biological and natural emissions. Restricted to MARA students only. Contact Barry Goldman, 2-5177, for more information.

“Methods, Manuscripts, and Money”
Discover three of the secrets to being a successful scientist at 2 p.m. in Bldg. 219, room 163. Learn how to apply “The Three Ms” – Methods, Manuscripts, and Money – to your professional and personal life, including hands-on practice and valuable information to enhance the side of science that is not taught in the classroom. This is the last of three workshops in the series. Contact Barry Goldman, 2-5177, for information.

“Radio Chemistry and the Nuclear Stockpile”
This Nuclear Science Internship Program seminar is located in the Bldg. 155 (new building east of Bldg. 151) auditorium and begins at 2 p.m. Topics include nuclear device diagnostics, how debris is recovered from an underground explosion, how radiochemical analysis of a debris sample results in the determination of the yield of the device, and some corrections having to do with debris fractionation. Contact Lynda Allen, 2-1748, for more information.

Wednesday 23
Women’s roundtable
A variety of women from various fields and divisions of the Lab will be available for a question and answer session in the Stevenson Room of Bldg. 151 from 10-11:10 a.m. Ask knowledgeable professional women about how their careers have impacted their education, families and other aspects of their lives. Contact Barry Goldman, 2-5177, or Marina Gonzalez, 3-7904, for information.

“Computer Incident Advisory Capability (CIAC) Overview and Network Data Analysis”
Listen to Doug Lim give a brief history and the mission of the CIAC program, and Tony Bartoletti present an overview of a major CIAC effort to enhance threat detection and mitigation through the analysis of hostile network traffic characteristics. Hosted by the Institute for Scientific Computing Research (ISCR) and the Security Program, this seminar will begin at 1:30 p.m. in Bldg. 219, room 163. Contact Linda Bodtker, 3-0421, Doug Lim, 3-6019, or Tony Bartoletti, 2-3881, for more information.

Thursday 24
Q & A with Edward Teller
Come to the auditorium in Bldg. 123 from 10:30-11:30 a.m. for a question-and-answer session with Edward Teller. Teller is best known to the public for his work on the development of nuclear explosives and for his advocacy of a strong defense for America. He also will be available to sign books for 45 minutes. Contact Aaron Miles, 3-8131, for more information.

MARA tour of SITE 300
Lawrence Livermore’s Experimental Test Site 300 supports the Lab’s main mission of overseeing the nation’s nuclear arsenal through the DOE’s science-based Stockpile Stewardship Program. MARA Participants can go to an orientation of the site and a detailed tour from 8 a.m.-1 p.m. off-site at Site 300. Contact Barry Goldman, 2-5177, or Debbie

Pastore, 3-5238, for more information.

“Hybrid Particle/Continuum Methods”
Recently, numerous hybrid methods that combine a molecular algorithms with computational fluid dynamics algorithms have been proposed. The Internship in Terascale Simulation Technology Seminar (ITST) program is sponsoring a seminar on this process and a discussion on elements common to all schemes, adaptive mesh and algorithm refinement hybrid, and future directions and challenges for particle/continuum hybrids face. Come at 3 p.m. to Bldg. 219, room 163 to hear this seminar. Contact Linda Bodtker, 3-0421, for more information.

“Computer Security is Everybody’s Business”
Computer security impacts nearly everything we do today. Come hear a representative from the Lab’s Computer Security Office (CSO) for an overview of the department and the new projects and issues they are currently facing, starting at 1:30 p.m. in Bldg. 219, room 163. Contact Terry Brugger, 4-4992, for more information.

Friday 25
UC Santa Cruz grad research opportunities
A series of research lab tours will be provided by UC Santa Cruz throughout the day to learn about graduate programs and research. Upon arrival deans and department chairs will welcome students, host a lunch and students will have the opportunity to ask graduate students questions at a roundtable discussion. Participation will be limited to 46-56 participants (space available on the bus). While the event is scheduled to run from 8 a.m.-3:30 p.m., a side trip to the Santa Cruz Boardwalk is being considered from 3:30 p.m. - 6 p.m. before returning to LLNL at approximately 8 p.m. Contact Barry Goldman, 2-5177, for more information.

“Laser Peening”
New laser peening technology that imparts a deep residual stress into metal surfaces improving fatigue lifetime, eliminating stress corrosion cracking, and reducing overall corrosion has been developed at the Lab. Learn about different applications for this technology at 11 a.m. in Bldg. 481 auditorium. Contact Dustin Riggs, 2-5780, or Lloyd Hackel, 2-9009, for more information.

Calendar items may be sent to Leslie Schwartz, 3-6624, L-797, schwartz16@llnl.gov

Technical Meeting Calendar

Friday 18
MATERIAL RESEARCH INSTITUTE
“Nanoscience Simulation at LLNL,” by Andrew Williams. 2 p.m., Bldg. 219, room 163 (uncleared area). Contacts: Mike McElfresh, 2-8686, or Jody Quick, 2-0620.

CENTER FOR COMPUTATIONAL ENGINEERING
“Overview of Verification, Validation, and Uncertainty Quantification in Computational Science and Engineering,” by Kam-biz Salari. 10:30 a.m., Bldg. 235, Gold Room (uncleared area). Contact: Debbie Leal, leal1@llnl.gov, to obtain the abstract.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH
“Compiler Management of Global and Dynamic Data Reuse,” by Chen Ding, University of Rochester. 2 p.m., Bldg. 451, room 1025 (uncleared area). Contacts: Bronis de Supinski (CASC), 2-1062, or Leslie Bills, 3-8927.

CHEMISTRY & MATERIALS SCIENCE MATERIALS SCIENCE & TECHNOLOGY DIVISION
“Experiments Aimed at Understanding Solvent-Vapor Smoothing of Polyimide NIF Targets,” by Mitchell Anthamatten, Chemistry & Chemical Engineering Division. 3:30 p.m., Bldg. 235, Gold Room (uncleared area). Coffee and cookies will be served at 3:20 p.m. Contacts: Tom Felter, 2-8012, or Rebecca Browning, 2-5500.

Tuesday 22
RADIATION DETECTION CENTER
“Compton Telescopes for Gamma-Ray Astrophysics,” by Steve Boggs, Space Sciences Lab. 11 a.m., Bldg. 151, room 1207 (uncleared area). Contacts: Ron Wurtz, 3-8504, or Christie Shannon, 3-6683.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to tmc-submit@llnl.gov. For information on electronic mail or the news-group llnl.meeting, contact the registrar at registrar@llnl.gov.

NEWS OF NOTE



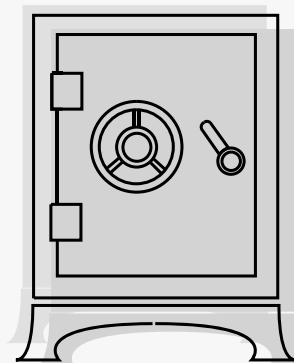
Provisional day-lock policy approved for classified data

An interim day-lock policy has been approved that will allow employees to resume day-lock use in those areas approved to process and store classified matter. Prior to using the interim day-lock procedure, employees must first take the following steps:

- If you use a Z-key to day-lock your office area, your office must be re-cored and a new key issued to you.
- If you use TESA to day-lock your office area, you must select a new personal identification number (PIN). Beginning this

week, remote TESA encoding stations will be set up to facilitate the required change of TESA PINs. The location and date for TESA encoding are as follows: today, Bldg. 132 Lobby from 8 a.m. to noon.

The Locks and Keys Section will also provide this service in Trailer 5226 between the hours of 7-9 a.m. and 1-3 p.m., Monday through Friday. Note that if you were enrolled



or re-enrolled in TESA on or since July 7, you do not have to change your PIN.

- You must complete the new “Day-Lock Acknowledgement” form.

This interim policy shall remain in effect until further notice. If you have questions, please contact your Program Security representative or the Security Help Desk at 2-0100.

BRIEFLY

New export control training package

The Office of Classification and Export Control (OCEC) has developed a new export control training package. This stems both from the DOE requirement to comply with the departments of Commerce and State rules, and from employee comments regarding the need for training that we received in the LLNL ISSM Lab-wide surveys.

As a result, a brief overview will be incorporated into the existing annual security refresher training. This will be a general reminder for all Laboratory employees of their roles, responsibilities and authorities regarding exports and of how interactions with foreign nationals could be deemed an export. CL0010-W, Export Control at LLNL is a more detailed, high-level course that is available online for Lab personnel whose duties are directly associated with export control activities.

‘Science in our Schools’ (SOS)

A “Science in Our Schools” Benefit Festival will be held to raise money and public awareness in support of the Livermore Valley Unified School District’s elementary science program, which has been eliminated due to budgetary constraints. The event will take place this Sunday at Robertson Park in Livermore, from 2-6 p.m.

This science-oriented family event will include live musical performances by professional local music groups and science demonstration booths operated by volunteers from local businesses, organizations, government, laboratories and community members. LLNL will be among the participants providing a science demonstration, activities for young children and information about the Lab’s research.

Other participating institutions and groups include: The Exploratorium, Valley Discovery Museum, Mad Science, Discovery Toys, Sandia National Laboratory, American Indian Center, Sierra Club, Aquatic Outreach Institute, U.S. Coast Guard Auxiliary, Bay Nature Magazine, Alameda County Master Gardeners, California Native Plant Society, Tri-Valley Stargazers, LUNAR Rocketry Association, Livermore Fire & Police educational units, A+ Spanish Academy of Danville, Livermore Water Resources Division and Zone 7 Water District.

Ticket prices are \$5 per student, \$10 per adult, and \$25 per family.

Proceeds will go to the Livermore Valley Education Foundation to support the preservation of the Livermore elementary science program. For information, contact Linda Lucchetti at 2-5815.

University Relations hosts meeting

The University Relations Program is hosting a set of focus groups with UC Davis on Aug. 28, with the goal of enhancing strategic collaborations between the two institutions. There will be five groups, focusing on the following areas:

- Agriculture, Bio-science & Health Services
- Physical Science
- Engineering
- Computer Science
- Geo-science, Atmospheric & Environmental Science

Approximately 40-50 professors from UC Davis are planning to participate. People who are interested in participating should contact Harry Radousky at 2-4478 or radousky1@llnl.gov.

Volunteers needed for SJ EYH

Volunteers are needed for the pre-planning efforts for the 11th Annual San Joaquin Expanding Your Horizons in Science and Mathematics Conference scheduled for Oct. 4 at the University of the Pacific in Stockton.

The group is looking for volunteers in the following areas: co-chair, finances, fundraising, conference program, workshop presenters, publicity, and media. To volunteer, go to: <http://education.llnl.gov/eyh/>.

For more information or questions, contact Cary Gellner at 2-0643 or gellner1@llnl.gov.

Openings in writing workshop

Are you someone who wishes to improve your written communication skills? “Grammar Too: Language Skills Workshop Sequel” (ED7351) picks up where the Language Skills Workshop left off.

It will sharpen your current skills and give you new information through practical and upbeat instruction and exercises. This two-day class will review and expand upon basic punctuation (commas, semicolons, quotation marks) and then teach how to correctly use dashes, brackets, ellipsis, etc.

The course is scheduled for Aug. 7-8 at the Training Center (Trailer 1879) from 8:30 a.m.-4:30 p.m. Cost is \$230-475.

For additional information or to enroll, contact EODD Training at 2-4842 or you can sign up online at [Ltrain](http://www-ais.llnl.gov/llnl_only/docs/hr/ltrain).

New college savings plan available

LLNL employees can contribute to the Golden State ScholarShare College Savings program through payroll. ScholarShare, a 529 savings plan sponsored by the State of California, is an easy and convenient way to save for college. Earnings are tax free if the money in a ScholarShare account is used for qualified higher education expenses, including tuition, fees, supplies, certain room and board costs, books and equipment.

To participate through Payroll, LLNL employees must follow a two-step process.

- First, enroll by completing an account application, which can be submitted online at the Scholarshare Website . (www.scholarshare.com). You must make an initial deposit of \$25 or more by check or electronic transfer from your bank. You can also obtain an account application by calling the LLNL Benefits Office at 2-9955.

- Once you have received an account number from ScholarShare, complete a Payroll Earnings Distribution Authorization form. This form can be obtained from the LLNL Payroll Website at http://www-finance.llnl.gov/ads_payroll or by calling Payroll at 2-9132. The completed form should be returned to Payroll at L-435.

For more information, see the ScholarShare Website or call the ScholarShare toll-free number, 1-877-728-4338, from 5 a.m. to 8 p.m. A presentation on the ScholarShare program will be held at noon, Tuesday in the Bldg. 123 auditorium.

LLESA for package receiving, shipping

Do you shop online or order products over the phone? Tired of hunting down your packages or worried about someone taking them off your porch?

Consider registering for the Time Zone’s package receiving service. It costs nothing to sign-up. Once registered, you can have your purchases shipped to the Time Zone and pick them up there for a nominal charge.

The Time Zone is also available to handle your UPS shipping needs. Packages dropped off by 2:30 p.m. will be picked up the same day. The Time Zone is open Monday through Friday, 7:30 a.m. until 3 p.m. and is located in Trailer 4128. For your convenience, a variety of packaging materials are also available.



AUTOMOBILES

1995 - Ford Probe SE, Sport Package, 63k miles, garaged/immaculate. Must Sell. \$4500/obo. 925-240-1090

2002 - Honda Accord, Silver, 18,000 miles, Automatic, 4Cyl. A/C,PS,PW,PL,Single CD, Front and Side air bags, Cloth Interior,\$17,500 925-935-7363

1994 - Pearl White Mitsubishi 3000GT. 10 Disc CD changer, AC, PS, PW, great condition - \$6,000.00 925-447-2670

1994 - Olds Cutlass Ciera. Spotless. 64K+ one-owner miles. 3.1L V6. Pwr. Excellent in and out. \$3700. 925-447-7082

1999 - Full Size Van, Dodge Ram, Under warrantee, seats 12, front and rear AC and much more. 47500 miles. \$11000. 925-516-0856

2000 - Mercedes ML430, White/Blk Leather, Excellent condition, 48,000(hwy)mi, Sky-roof, Seats 7, GPS, Roofrack, Bose, New-tires, Extras, asking \$28,500. 650-348-8872

1994 - White G20 Infinite, beige interior, automatic, good condition, sunroof, am/fm, a/c, cd player, asking \$5000 O.B.O. 925-634-7362

1993 - Ford Explorer XLT, PS/PB/AT, 2-wheel drive, 110k, green, runs good, \$3300. 925-455-5655

1992 - Honda EX, 5 speed, 2 dr, sun roof, 153K, original owner,mechanically maintained, dependable,great gas mileage \$3200. 925-846-9353

1987 - Nissan 300Z, Loaded, T-Tops, excellent condition, one owner, 93,000 miles. \$3500 OBO. 925-443-2353

1997 - Beautiful Eldorado, excellent condition, new tires, all power, best stereo, security system, low miles. Have to see. 14,500.00 OBO 510-582-2938

1989 - Toyota Camry, 189,000 miles. Great commuter car. Runs good, and has new tires and new battery. \$2,500. 510-278-5985

1997 - Honda Accord EX Cpe, 5-spd, leather, sunroof, pwr locks/wind/seat, AM/FM cass./6-disc CD, new tires, great driver, firmats, alarm, 110K mi. \$8000 925-784-2496

1995 - GMC SAFARI AWD,SLT Package, Great ski vehicle, 8Pass, Loaded, all options, 130K miles, \$5999 / Best Offer 209-599-4644

1999 - Chrysler Sebring LXI coupe White with Grey leather interior Power windows, locks, mirrors, driver seat and sun roof 62,000 miles \$10,800 925-560-1346

1994 - Lexus LS 400. Fully loaded: leather, 6-disc changer, Nakamichi system, silver with gold trim. Call Marc. 510-828-2269

1988 - Honda Civic. 101K. Automatic. No accidents, very reliable, runs great. \$2800. cell: 617-306-0999

1988 - Nissan Sentra sedan, 2DR, 4 spd manual, well maintained, excellent mileage, good body condition, Michelin tires, \$900 925-736-1383

1993 - Mitsubishi 3000 GT SL. Silver, 5 speed. Loaded- Custom wheels, CD changer, sunroof, all maintenance records 145K. Runs excellent \$6500 925-516-4973

2001 - Saturn SC1 3dr coupe. Silver,5-speed ,AM/FM,CD, moonroof, AC, tilt steering, good condition,new tires, 75k service plan, 45K miles. Need \$7,420.00 925-784-1291

1998 - VW Beetle.Custom wheels, \$2000.sound system,Car cover, Bra,Rear spoiler,Sunroof. only 33,000 mi. \$10,000 925-371-0318

1995 - Ford Escort, \$500 or BO 925-449-6048

AUTOMOBILE ACCESSORIES

Car-top carrier, Sears X-Cargo 18 cu. ft. Used once. \$120 new including straps and mounting kit. Asking \$50. 925-245-1574

Tonneau cover for 2000-2003 Dodge Dakota quad cab,flat black color, with bike rack. \$300. Also bed liner for same truck, \$50. 925-600-7551

BOATS

12ft Valco Alum boat with tilt trailer, 10 hp Merc ob, elec. trolling motor, fish finder, oars, 2 life vests, HD marine Battery \$1500 209-467-3928

1996-20ft Blue Water~ Mirage~ Family Ski Boat \$14,500. 1 owner, garaged, serviced yearly, I/O Merc. 4.3L V6, tandem trailer w/swing away hitch. 209-599-7499

1975 Gulfstream, 19 ft V, 175 hp, I/O, runs great. Super family boat. \$2K 209-544-9208

1974 Ford E300 van and 12 foot aluminum boat with motor. low original miles \$1,000.00 for both. 925-443-1172

ELECTRONIC EQUIPMENT

Mac Performa 636. 9 years old, with extra memory, 14-inch monitor, keyboard, and StyleWriterII printer. \$99. 925-443-3252

SONY 4x2x24 Internal CD-RW w/audio cable, IDE, and Nero Burning software, includes Ahead InCD. Mint condition. Model CRX100E. New \$80, sell for \$35 925-447-7406

Linksys EtherFast Cable/DSL Router 10/100Mbps Model No.BEFSR11 ver2. Almost new in a box. Also Linksys 5-port Workgroup Hub. The two items - 15\$. 510-728-4381

Television, JVC, 19 inch color, works well, looks good, \$15. 925-606-6155

Thomas Kinkade Screen Saver, new in box, never used, windows/mac versions, paid \$16 sell for \$12. 40 of his best-loved paintings. 925-447-8613

Wireless Kensington mouse for PC or Mac. Never opened, still in box. Paid \$50. Only \$25. 925-648-0671

Gateway Solo Laptop, Microsoft Windows 2000 Mellennium Edition/Epson Stylus Color printer 580. \$300.00 209-823-8767

Sony Clie N610C hand-held PDA. Recently refurbished by Sony. \$125 obo. 530-945-3773

GIVEAWAY

Office Desks. We have 5 of them. You pick up. Free. 510-351-0969

Free to a good home. Black lab mix, male. Good with other pets. 925-785-0941

Basketball hoop and stand, water-filled base style. Good condition and with water instantly usable. 925-462-6183

Camper Shell, 4ft high 8ft long with removable back, wt 300lbs, lights, cabinet, windows 925-606-8562

Girls small bike, will need tire tubes. 925-455-5736

Glass table top,round, 40 inches diameter, 3/4 inch thick, one small chip on edge. you pick up. 209-599-5056

HOUSEHOLD

Cultured Marble bathroom countertops with built in sinks (two sinks per countertop). Excellent condition, virtually new, 2 of them. \$50 each. 510-351-0969

Square hot tub for sale w/cover. Motivated to sell. Owner is moving. Call for specs. \$2k or BO. You haul before 7/30. 925-449-5511

Brown Italian leather modular chair and ottoman set, 2 chairs and ottoman. Use either as sofa or corner set. Orig. \$3000, sacrifice at \$300. 925-361-7111

Oak and Glass Curio Cabinet, Elegant, 5 glass shelves with light - \$150 925-426-1438

GE Refrigerator 21 cu ft. Top freezer model with automatic icemaker. 6 yrs old. Practically in new condition. \$175. 925-454-8827

Anitque sofa with oak trim, good cond, \$500.00 or b/o. Oak coffee table. good cond, \$75.00 or b/o. Wind-back chair, \$50.00 925-449-3206

New crib with mattress solid oak white, \$150 925-426-1438

Moving sale. New sofa \$130 OBO, new book case \$14, lamps, wine rack, queen bed frame+box spring \$50. More! 925-245-0728

Woodworking tools: 10in Delta TableSaw; Grizzly 6in joiner & 12in planer; Pony pipe clamps; DrillPress Mortise jig; Misc stuff Call for\$ 925-736-8604

Estate Sale. Asian art, Danish teak furniture, linens, books, baby grand, secretary, more. 7/26-27, 8 to 4. 5244 Kathy Way, Livermore. Phone 925-447-0574

Antique oak rocking chair with leather seat \$200. Oak tri-door medicine cabinet 30X30 inches \$50 OBO. Photos available. 925-455-4846

Refrigerator. GE side-by-side with water and ice dispenser. Harvest gold. Good condition. \$175.00 925-426-1438

Multi-colored, wood trim couch and love seat. Excellent condition-just needs to be cleaned.\$400.00. Call after 6:00 PM. 209-834-0469

BRASS BED, Cal King. w/box spring and mattress, \$150 209-832-2846

Mahogany formal dining room table \$400.00 OBO Mahogany hall tree \$150.00 OBO 209-832-0444

Mobile keypad with 2 USB ports for Mac/PC laptop. Never opened. Paid \$40. \$20. 925-648-0671

Amana refrig, 1 yr old. Runs perfect. Energy saver, asking just 500.00. 510-537-7222

Lazy Boy sofa and love seat, blue, built-in recliners, like new condition. \$900 or best offer. 209-983-9442

Wanted-Painter, for inside 3/2 home in Modesto.209-492-0270

Ladies & Gents Victorian chairs, circa 1860. Original upholstery. Call for price. 925-245-1574

Refrigerator, Whirlpool 19.6 cu. ft. frost free, almond color \$75 925-736-1383

Table, 48X30, and four chairs. Like new condition. \$125. 925-462-7831

Moving must sell 2 twin headboards, legs for beds, wood tables and other misc. items at low prices. 925-447-1023

MISCELLANEOUS

6-foot Workbench with 2 shelves and light \$200 obo 925-513-8651

Two tickets for sale to the San Francisco Symphony Patti LuPone concert on Saturday, July19, Davies Hall \$18 each 925-361-7111

Oak bar w/brass top 53X20X42 w/two matching bar stools, \$150. 925-426-1438

Entire Beanie Baby collection. Lots of Bears. Take them all for \$300.00. Call for list after 6:00 PM 209-834-0469

Pool Table. Very nice regulation table. Oak with maroon felt. Sticks and all other accessories included in price. \$900.00 925-426-1438

SixFlags Marine World and Universal Studios discount tickets. 3 for each. 925-931-1240

Wooden swingset, 1 year old, in excellent condition paid 600.00 will sell for 300.00 or b/o. Monkey bars,2 swings, slide. 209-983-8480

Monitor stand, Kensington SpinStation, with rotating storage system, clears desk clutter. Brand new. Paid \$40. \$20. 925-648-0671

Antique diningroom light.Very unique, 15,00, American Tourister luggage, 4 pieces, good condition with keys, 45.00, one with wheels, 40.00. 510-537-7222

Travel certificate to Hawaii, Puerto Vallarta, Orlando, Vegas, etc. Two adults, 3 nights. Sun, Mon, Tue arrival. 60 days advance notice. \$50 925-449-0611

A few collectible Longaberger baskets and Boyd bears. Call for list and prices 925-447-3432

Southwest Airlines ticket credit of \$263 for sale. Travel must be completed by 9/23. Price: \$200 or best offer. 925-443-3326

MOTORCYCLES

2001 - 2001 XR650 Honda - Baja & Hop Up Kit, Street Legal with many EXTRAs with low miles. 925-684-2532

1987 - Kawasaki Ninja 750R, 11k miles, stored 6 yr, new tires, chain, sprockets (U-

See complete classified ad listings at <https://www.ais.llnl.gov/newsline/ads/>

install). Clean, DMV thru 5-04. \$1000 please call before 9PM, leave msg. 925-449-7009

1991 - H-D FXR. Excellent condition, low mileage and many extras. Asking \$13,000 or b.o.. 209-239-4450

MUSIC INSTRUMENTS

Guitar Acoustic Gibson Epiphone Model PR-650-N. Very nice in new condition, smooth action, with folding stand. \$225 or best offer. 925-449-2008

Wurlitzer Spinet piano. Oak wood with turned legs. Great starter for the children. Nice bench. \$500 925-373-9128

Casio C-16 electronic keyboard. with stand and foot pedal. \$125 or best offer. 209-983-9442

Grand piano, small, good condition, \$1500, call after 6pm or on weekends 925-426-8050

PETS & SUPPLIES

Horse boarding available. Large pasture, next to Morgan Territory regional park with miles of trails. I feed, worm, etc. You ride and have fun. 925-447-4830

15 foot x 20 foot dog kennel with 3 foot door heavy guage galvanized material.100.00 209-823-1111

Bird cage and stand, gold metal with perch and bowls, overall height approx. 5 ft, good for mid-size bird such as cockatiel \$75 925-736-1383

Free to good home. 2yr old Australian Shepherd/Border Collie female dog. Needs room to roam & very playful. 209-825-8959

RECREATION EQUIPMENT

SADDLE: 17 inch Crosby Equilibrium All Purpose Saddle, excellent conditions; BO: 925-634-2307

Nordic Flex exercise bench. Excellent condition. Paid \$1000. Yours for \$500 or best offer. 209-983-9442

Weight bench with leg lift option to torcher yourself. Two bars and ~100#s of disc weights. \$100 for the right to sweat in your own garage. 925-245-1574

1 set of hand weights in 5 and 10 pounds. \$10 for set. 925-447-3432

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>.

Modesto - Ride Share - Scenic and Oakdale Road. Hours: 8:00 - 5:00 p.m. can be in earlier and stay a little later, if necessary/flexible. 209-579-7673, ext. 2-8645

MANTECA - Rider/Driver Work hours are 7:30AM to 4:00 PM Flexible drive schedule. 209-823-5593, ext. 3-8539

Berkeley - Rider/Driver needed to complete a 4 person carpool from north Berkeley. Lv. Berkeley at 7 AM; lv. LLNL at 4:40 PM. 510-524-8332, ext. 2-5949

Lafayette - LaMOrinda Vanpool (also Walnut Creek stop at Rudgear Rd): reclining seats, reading lights, 7:45-4:45, \$110/mo (pretax reduction available) 925-943-6701, ext. 2-3005

SHARED HOUSING

Dublin - Room for rent, quiet clean apartment complex \$625/mo includes private bath and all utilities except phone. Non smoker, male preferred. 925-998-8794

Dublin - Master Bedroom and private bath for rent in Dublin house. Hot Tub, great neighborhood. \$700/month. 925-336-1576

Dublin - - roommate wanted to share new 2200 sq ft house. Separate bathroom, use of pool, gym, garage & laundry facilities. \$950/mo. 925-829-4341

Livermore 1 mile to LLNL, Share 3 bd/2 bath home - Bedroom, private bath, own living area, wash/dry, no pets/smoking \$775month and 1/2 util,Deposit. 925-373-1166

San Ramon - 4BR/2Ba house. Share half.

\$1025 + util. Large yard, minutes to lab. 28y/o male + cat current tenant. Avail now. . 925-829-1701

Livermore - - Bedroom for rent, plus 1/2 office & private bath. 4 mi. from LLNL. \$675/mo. includes utilities. No smoking household. 925-447-5456

Brentwood - Room w/furnished, private bathroom, kit/laundry privileges,utilities/cable included. Non-smoking. Short-term conidered. \$550/mo 925-455-4666

Livermore - Room in home near lab. \$500.00 month plus utilities, no smoking or pets 925-455-6044

TRUCKS & TRAILERS

Utility trailer dual axle with electric brakes. \$1000.00 209-239-2325

1999 - Chevy Z-71 Ext. Cab with 3rd door, all power, sprayed-in bedliner, camper shell, CD, tow pkg. 97K freeway miles, \$16,500 209-838-6105

1997 - Chevy Silverado 1500, Vortec V-8 5.7 Ltr, 3rd door ext. cab, 6 ft bed, 58 k, new tires, White w/ grey cloth interior, very clean. \$12,000 209-836-5252

1999 - Ford 4x4 Eddiebauer Explorer fully loaded, low mileage,Leather,CD,PS,PB,CC,PDL,PW, Privacy Glass, Asking \$18,000.00 OBO. 925-373-1944

Leer camper top fits older Toyota shortbed. Light gray color. \$50 925-373-9128

1946 - Ford PU, runs, 289 motor, auto trans \$1500 firm 209-545-2975

1989 - 1989 Coleman Tent Trailer, sleeps 6 , good shape , new tires, very clean \$1500.00 925-449-6120

1991 - 20 Ft Komfort Lite Travel Trailer. Fully self-contained, very good condition, kept in RV Barn, sleeps 4, great for young family. \$5200/Offer 209-823-8270

1999 - Silverado 1500, 3rd dr. LT, Z71 off-rd. pkg. Blue w/shell. Loaded. 41.5K, Great cond. + deal. \$15K firm. 925-449-3560

1979 - Ford 4x4, long bed, black.Good condition and low miles on new re-built engine,Warner hubs. Asking \$5,000. 209-239-4450

1992 - Dodge Ram Van 310, Starcraft Conversion Pkg, 5.2L V8, 84K miles, leather seats/power/tow pkg, many extra. Must seel \$7,300/ OBO 925-455-4666

VACATION RENTALS

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. Low LLNL rates for year-round reservations. 925-449-0761

SOUTH LAKE TAHOE - 3 Bedroom 2 bath Chalet, nicely furnished, All amenities, Park w/ Lake, tennis etc. Great for family vacation! RESERVE NOW FOR SUMMER OPENINGS! 209-599-4644

Solana Beach/Del Mar - Oceanfront condo, Deluxe 2br., 2 1/2 ba., tennis, pool, jacuzzi, fully equiped, gated and indoor parking, near San Diego attractions 925-443-2271

Kauai, HI, On the Beach - Nov. 22-29, 2003 1 BR Condo, sleeps 4, \$600 for the week. 925-449-6048

WANTED

Livermore - Wanted: quiet bedroom; daysleeper; SAT-TUE; no amenities. Mature family man hoping to cut long commute. 916-624-4395

Wanted: Remote, quiet spot of land to rent for evening or weekend in VW camper. 925-784-7529

HOOD FOR 1955 PONTIAC. Good usable condition. Sheetmetal only is fine. Will pick-up and pay reasonable price. 925-373-7955

Reliable, clean family of 5 (+1 part time) looking for 3B/2BA rental near lab. Present commute is 1200 miles/2 weeks, would like to be closer. 209-327-0012

Lab’s aerogel weighs into Guinness World Records

By Leslie Schwartz

NEWSLINE STAFF WRITER

What contains more than 99.9 percent air, conducts heat 12 times more slowly than glass, weighs 526 times less than water and is going to appear in the 2004 *Guinness World Records Book* as the least dense solid?

An aerogel developed at the Laboratory.

With a density of just 1.9 milligrams per cubic centimeter, an aerogel developed by the Chemistry and Materials Science Directorate has taken the world record title from the Pasadena-based Jet Propulsion Laboratory. JPL created a denser version of aerogel (3 mg/cc) to claim the 2003 record title.

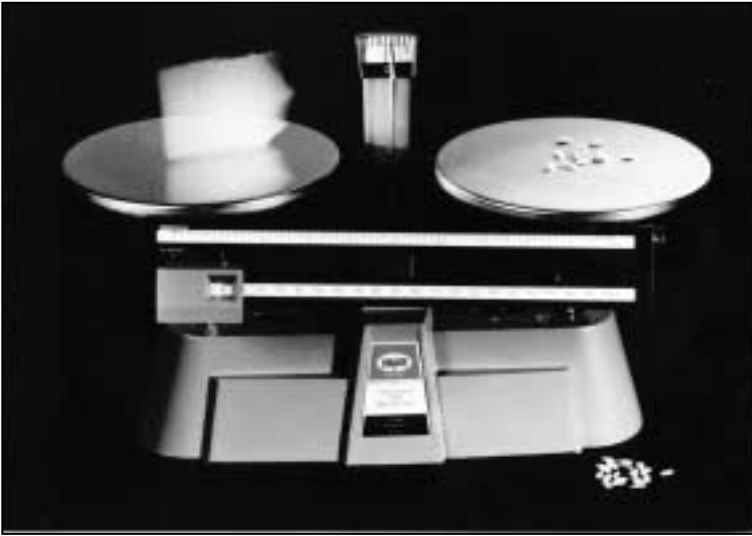
Lab researchers have reduced the density of aerogel they created even further to 1 mg/cc, which will most likely replace the 1.9 mg/cc in Guinness’ 2005 edition, according to science and technology records collector David Hawksett.

Aerogel, a translucent solid that looks much heavier than it is, was discovered in 1931 by Steven S. Kistler at the College of the Pacific in Stockton. Aerogels were first made to answer questions concerning the nature of gels in the 1930s. Later in the 1950s they were commercially used in paint until a fumed silica process became a cheaper alternative for paint manufacturers.

Early scientific experiments with aerogels were limited by the high densities of the samples and the small amount of materials that were available for aerogel production. But today, less dense samples have a wide variety of applications in electronics, acoustics, thermal insulation, optical devices and physics experiments.

A team of scientists at the Lab, including John Poco, Larry Hrubesh, Tom Tillotson, Rick Pekala and Joe Satcher, has been working with aerogels for more than two decades. Great improvements in the composition and clarity, as well as reduced density of aerogel, have been made since the material was introduced to the Lab in the early 1980s.

Transparent aerogels below a certain density could not be made in a single step during the early years of



FILE PHOTO

Lab scientists have developed an aerogel that weighs less than one sunflower seed. A more recent version set a 2004 Guinness World record .

aerogel development. Then, in the late 1980s and early 90s, Hrubesh approached Tillotson with the challenge of developing a process that would allow researchers to make aerogel densities below this single-step limit.

“The solution was quite simple,” Tillotson said. “It had to do with equilibrium reactions and how to keep the reactions going forward and not back to the original starting materials.”

After this breakthrough, aerogel technology and innovation boomed. The Lab team was the first to produce highly transparent aerogels in the range of 30-50mg/cc — as light as Styrofoam — and then created a patented technique that enables ultralight aerogels as low as 1 mg/cc.

Poco, a Lab chemist, notes that “aerogels have interesting stealth characteristics” including transparency and very low density. Aerogel also has one of the lowest refractive indexes of all solids, and has greatly improved in clarity, quality and transparency. “Transparency and clarity are as important as the low density of aerogel. As our samples have gotten lighter, they have also gotten more transparent,” Poco said.

“The Lab is one of the leaders in aerogel technology. We use more materials to create it and more innovative procedures than most anyone else.”

The Lab uses both organic and inorganic materials in the creation of various types of aerogels as well as a wide variety and mix of materials in the production process.

With regard to their new title, Poco said: “Setting a world record was never on our radar screen.” However, when CMS researchers determined that others had claimed the lowest density, they wanted to set the record straight. They contacted Guinness World Records, sent documentation and samples, and received confirmation that they now hold the world record.

“The Lab is working on cutting edge technology and this award should be telling the world just that,” Poco said.

Further work on aerogels has been conducted for the National Ignition Facility, General Motors and experiments in conjunction with UC Davis, JPL, NASA, U.S. military services and private organizations interested in the promising properties of aerogels.

While aerogels were originally thought of as “a solution looking for a problem,” today many practical applications have been found for this non-toxic, non-flammable substance. According to Hrubesh, “Aerogel materials have the most extraordinary set of properties that enable so many exciting applications in science and for commerce. We are proud that LLNL is recognized for its innovations in aerogel technology, including this world record, which have helped to further expand the range of applications for aerogels.”

Lab-developed aerogels have previously been used in protecting the diminutive Sojourner rover against freezing temperatures on Mars and they are being used in another NASA project, called STARDUST, a mission to capture comet dust and return it to Earth for analysis.

There are many other projected markets where aerogels may be applied, including aiding in collecting solar energy, energy storage devices, water purification and improving thermal insulation. However, the commercial costs still remain relatively high at this time.

The 2004 edition of the *Guinness Book of World Records* will be available in September. Aerogel can be found on the “Science Advances” page.

SECURITY

Continued from page 1

mobilized quickly,” said Russ Miller, acting department head for Safeguards & Security. “It speaks to how serious Protective Force takes this sort of thing and how much they want to resolve it.”

Miller said the officer lost his keys along a path where a Lab employee was spotted riding his bike. Because this was a time when employees do not normally ride bikes and a route not normally taken by bike riders, the officer stopped the employee for routine questioning, then let him proceed. Shortly after that the officer noticed his keys were missing.

Miller said the fact that the officer questioned the employee shows the dedication of Protective Force to Lab security. “In a time when the Lab has been in heightened security, this officer noticed something unusual and addressed the situation quickly,” he said.

When the officer noticed his keys were missing, “the guy must have retraced his steps 10 times,” Miller added. “He was so concerned about finding them. We finally had to send him home to get some rest.”

Meanwhile, the Lab dispatched extra search teams, including volunteers from Plant Engineering and non uniformed Security Department employees, to find the keys, which were located on Sunday.

“This is a great example of how the Lab can mobilize a team,” Leary said. “When you get a cross section of people working together, the Lab always excels.”

The July 11 events underscored the need for



JACQUELINE MCBRIDE/NEWSLINE

A Protective Force officer displays a new lanyard for attaching keys to belts.

improvements in key handling procedures. The keys alone would not have permitted undetected access to Lab facilities.

“Due to the layered security systems that provide defense in depth, such as TESA access panels, alarm systems, and the need for passwords, having the keys alone would not have allowed for undetected access,” Leary said.

In addition to the immediate steps taken by Leary, LLNL Director Michael Anastasio has directed that the process of implementing longer-term enhanced physical security (locks, keys, etc.) and related security technologies at the Laboratory be accelerated. A special team, led by Doug Coffland who heads the department’s Engineering and Computation Division, has been aggressively developing best practices and

searching for state-of-the-art security for use at the Laboratory.

“The immediate notification by the officer and the quick response by our employees was the key to success in this situation,” Anastasio said. “I applaud the managers in Safeguards and Security for their identification and implementation of these new key-handling procedures. “

“Security is a matter of constant vigilance and constant examination of processes to ensure security,” said Glenn Mara, deputy director for Operations. “Using what we’ve learned to enhance engineered features and procedures is a part of our security culture. I’d like to commend and thank the Protective Force officers, Laboratory Services and the other Lab volunteers who worked tirelessly and quickly to get this matter resolved.”

Leary directed the implementation of three major changes in the way keys are handled at the Laboratory. They are:

- Officers will physically check for their assigned set of keys and acknowledge possession as part of their regular periodic radio call-ins to the protective force communications center. These “possession checks” began Saturday, July 12.

- Special key “lanyards” designed to physically “clip” the keys to a secure necklace have been distributed to officers for immediate implementation. These lanyards will augment the current “key keepers” that officers wear on their belts.

- All officers will now follow standard procedures for wearing the lanyards and key set. The keys must be adhered between the belt and shoulders and visible from the front.

CARGO

Continued from page 1

brought unprecedented new challenges to the transportation industry. The need to secure the transportation infrastructure against terrorism while maintaining commercial efficiency is requiring dramatic changes in how the industry operates,” Cochran explained.

The Laboratory, especially NAI and its Homeland Security programs, has a number of technologies to assist in this, particularly its breakthrough developments in radiation and biological detectors; information analysis; infrastructure protection systems to integrate cargo containers with minimal impact on port activities; and unique capabilities in nuclear threat assessment.

WCBF Security & Intelligence Solutions sponsored the conference, with participation from the U.S. Customs Service, the Transportation Security Administration, the U.S. Merchant Marine Academy, the National Center for Technology and Law, the World Customs Organization and the Lab, among other participants.

The emphasis on securing the international supply chain from terrorists has prompted a number of initiatives by the U.S. government and other



NAI

Lab employee Joel Swanson uses a commercial radiation detector in a test.

authorities, including the Customs Trade Partnership Against Terrorism. International regulations impacting how cargo is handled and processed continue to be developed, and while these laws and regulations are being implemented with speed, other issues such as the transportation of hazardous cargo and the potential for smuggling materials for weapons of mass destruction remain a serious con-

cern. “The freight transport industry is working to tackle physical and cyber security on a number of levels,” Cochran said. “From checking out thousands of shipping containers coming into U.S. ports each day, to assessing the dangers of terrorist activity.”

In addition to understanding the various threats, the conference looked at regulatory requirements, how the transport industry can prepare for and respond to terrorist attacks, as well as some of the latest technologies available to improve transportation security. The conference looked at the practicality of managing security risks throughout the supply chain and how effective counter-terrorism measures can be employed by all cargo transporters and related third parties.

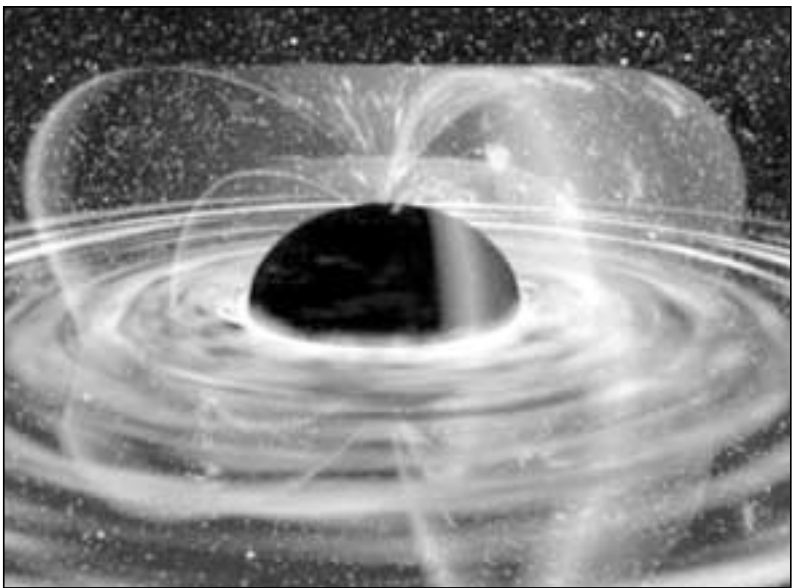
“It was an honor for the Lab to participate in this conference,” Cochran said. “The Lab is well positioned to make strong contributions to meeting these challenges. Cargo container security is one of the nations most difficult technical and practical challenges in preparing for and countering terrorist threats. This was an opportunity for the top experts in this area to get together to discuss the issues and priorities, as well as identify better ways to keep their industry safe.”

BLACK HOLES

Continued from page 1

Stanford proposed that near the event horizon surface of a black hole, ordinary space undergoes a continuous phase transition to a phase with a much larger vacuum energy than the cosmological vacuum energy that has been inferred from observations of distant supernovae. Working with Bob Laughlin and David Santiago of the Department of Physics at Stanford University and Evan Hohnfeld who is now at Harvard University, the physicists have predicted that near the surface of a black hole, matter behaves in a markedly different way from what is predicted by classical general relativity.

Generally speaking, black holes are believed to be remnants of stars that have collapsed into themselves, and that gravity can pull in and obliterate objects that approach the surface. But Chapline’s group believes that black holes are



NASA

Lab researchers have suggested black holes are actually extended bodies made up of “dark energy.”

actually extended bodies made up of “dark energy” and that matter doesn’t disappear when

it falls inside the event horizon surface.

However, matter can be transformed when it crosses the surface of a black hole. Chapline said the behavior of sound waves crossing a critical surface in a vertical column of a super fluid model provides the necessary insight into what happens to relativistic particles when they approach an event horizon.

“The energy of the relativistic particles will become a quadratic function of momentum as they approach the surface, and above a certain energy, the particles will become unstable as they cross the surface,” he said.

As a result of this instability, a star falling onto the surface of a large black hole, or a massive star undergoing gravitational collapse will emit pulses of radiation with characteristics “strikingly similar to those of at least some cosmic gamma ray bursts,” Chapline said.

An article about this work appears in the July edition of *Scientific American*.

NANOS

Continued from page 1

tory including elevated attention to safety, security and compliance matters; ensuring a ongoing focus on the national security mission; maintaining outstanding science; continuing and sustaining improvements to the business operations and management practices; and building community partnerships.

Nanos, 58, the former commander of the Naval Sea Systems Command and of the Navy’s strategic nuclear program, served as principal deputy associ-

ate director for Los Alamos’ Threat Reduction Directorate before being named interim laboratory director in January. Nanos’ naval career began with graduation from the U.S. Naval Academy in 1967. His sea duty included service aboard destroyers and a tour as engineer officer on the aircraft carrier America (CV-66).

Nanos earned a doctorate in physics from Princeton University in 1974. Nanos will be paid a salary of \$334,700, which was approved by the UC Board of Regents and the U.S. Department of Energy.

SURVEY

Continued from page 1

anonymous and can be handled through a paper questionnaire or electronically. The survey takes about 15 minutes to complete.

The stated objectives for ISSM are to enhance the existing safeguards and security system and make working securely as effi-

cient as possible. Other objectives are to improve ownership of security by those who must implement it in their daily work and improve accountability of those who manage the work. The survey will help Laboratory management gauge how well the objectives are understood and provide insights on how the program can be improved. The survey will be conducted from Tuesday through Thursday, July 31.



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